

APPLICATION  
FOR  
UNITED STATES LETTERS PATENT

TITLE: ENHANCING TOUCH AND FEEL ON THE INTERNET

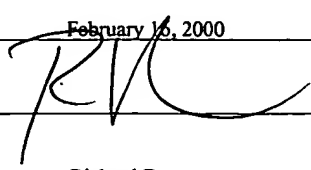
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**ENHANCING TOUCH AND FEEL ON THE INTERNET**

This application claims priority from Provisional  
5 Application Serial No. 60/155,543, filed on September 22,  
1999.

The present application relates to improvements in the  
user interface that enables enhancing simulation of real touch  
and feel over a remote information server.

10 More specifically, the present application describes  
enhancing the realism of product descriptions over the  
Internet, to make Internet shopping more like real life  
shopping.

15 Background

Shopping over the Internet has become very popular. A  
primary reason is convenience. A user can sit at their  
computer and shop from a number of different Internet web  
sites. Without physically moving, the user can select from  
20 different items in different sites. The prices are often  
lower than, or at least comparable to, what one would pay in  
retail stores. The shopping is very convenient.

Internet browsing provides a limited amount of  
information about the product. In a store, if a user wants to

select between multiple items, the user consults the packaging that accompanies the product. They can read the packages, look at information on the package, and touch the package. The packaging often sells the product. Large amounts of money  
5 are spent on packaging for the products.

Internet web pages often reflect minimal information about the product packaging. Hence, shopping on the Internet is most effective when the user already knows what they want.

Software such as Apple Quicktime VR (TM) allows some  
10 limited pseudo three-dimensional viewing.

#### Summary

The present application teaches a new paradigm of selling over the Internet.  
15

#### Brief Description of the Drawings

These and other aspects will now be described in detail with reference to the accompanying drawings, wherein:

20 Figure 1A shows a screen shot of an exemplary web page for selling a product;

Figures 1B and 1C show views of the simulated 3D product, respectively from the front and the rear;

Figure 1D shows an image formed of varying resolution

portions;

Figure 2 shows a flowchart of operation of the first embodiment;

Figure 3A and 3B show different vantage points used to  
5 view an object to enable simulated three dimensional view;

Figure 3C shows a flowchart of operation with these simulated viewpoints;

Figures 4A and 4B show a book display embodiment, showing the book from front and rear respectively;

10 Figure 4C shows the inside of the book; and

Figure 5 shows a flowchart of operation of this embodiment.

#### Description of the Preferred Embodiment

15 According to the present application, a user interface is described which provides the same information to a user that could be provided if the user could physically pick up and handle the product.

20 According to one aspect of the present application, the entire product package is rendered in three dimensions. The rendering includes the shape and color of the product from at least a plurality of different angles, and specifically from at least enough angles to enable reading each label on the package. The user interface includes controls that enable

moving the product within the user interface, in a way that enables viewing from each of these different angles.

One special application of this system is for use in books, music and videos. Bookstores are used by people who  
5 browse through the book selection, reading pages, looking at pictures, and trying to get the feel of the different books. The present system teaches an interface to the book contents that enables viewing the outside portion of the book, specified pages of the book, and leafing through random pages  
10 of the book. An embodiment limits the amount of reading that the user can do, to prevent the entire book from simply being read on line.

Another aspect of the above applies the same kind of operation to videos and music. The liner notes can be  
15 perused. and the packaging of the video/music element can be viewed from different angles.

According to one aspect of this system, a special extension to hypertext markup language is defined. A hypertext mark up language extension/object is defined which  
20 can be hold the information that is contained in the three dimensions of the package being viewed. Another aspect allows the information to be used within other programs, e.g., Powerpoint, or an executable file.

A graduated view system which displays different amounts

of information while loading additional information. The system starts by displaying a two-dimensional image, or "splash". The two-dimensional image itself is formed in a graduated manner, using a low resolution image, which is progressively increased in resolution as more information is received. The two dimensional image is shown while the three-dimensional image information is loading.

The final image can also be graduated. It can include lower resolution portions which show the ornamental portions of the object, and higher-resolution portions which show the readable portions of the object. In one embodiment, the higher-resolution portions are formed from ASCII text.

According to another aspect, an HTML extension is defined which enables the three dimensional viewing.

Another aspect defines a reduced data set for the system described above which enables separate views from different angles to simulate three dimensional viewing without actually using a continuous three dimensional view.

Another aspect teaches a new paradigm for selling products in which the products are exhibited on the Internet using information that is obtained from a three-dimensional view of the product that includes at least enough resolution to read each of a plurality of labels of the product, and to see the shape of the product from each of a plurality of

different views. Another part of the paradigm has the seller of the product providing electronic images representing packaging information for the product. The web sites that sell the product can use that packaging information as parts  
5 of their website. Like stores, where every store gets a package for the product from the vendor, each Internet seller gets an electronic package for their product from the vendor.

The preferred embodiment will be described with reference to Figures 1 which shows an exemplary web page using the  
10 present system. While the preferred embodiment describes this system being used on the Internet, it should be understood that this can be used on any remote information server that is used to sell products.

The product shown in this embodiment is a bottle of  
15 aspirin. The bottle of aspirin has a specified three-dimensional shape. The manufacturer of the aspirin produces the bottle and the packaging for the product. In this embodiment, the manufacturer also provides two different files, one being a progressively renderable two-dimensional  
20 JPEG image of the bottle as seen from the front. Another image is a three-dimensional rendering of the bottle. Such information can be produced using three-dimensional AUTOCAD (TM), or some other three-dimensional drawing program. The three dimensional rendering that is produced has at least

sufficient resolution to enable reading all of the labels on the product. In Figure 1A, a screen shown at an initial time is shown. A normal sales screen 100 includes the general description of the product, the price, and ability to "add to  
5 cart" and "Check out". Figure 1A also shows a image portion 110. The whole page -- image portion 110 and the sales screen 100, are defined at step 200. The sales screen is defined using HTML code. The image portion is defined within the HTML code also and this can be displayed as a rectangle as  
10 shown in Figure 1A.

Figure 1A shows a progressively-rendered two dimensional JPEG being displayed as 112. This is shown in the Figure 2 flowchart. At step 202, the display of the progressively rendered JPEG begins. First the lowest resolution version is  
15 displayed at step 202. After the lowest resolution version is on the screen, the 3D image begins loading at step 204, and at the same time more information about the two-dimensional JPEG is loaded at 206. The JPEG resolution is increased by the additional information.

20 When the 3D image is completely loaded, a new image portion 110 is displayed at 208 that shows the information in the 3D image.

Figure 1B shows this image portion including a simulated three-dimensional view of the product 122. A plurality of



movement keys 123 - 130 define different movement directions. Each enables rotating the view of the product in the direction defined by the arrow of the key. Figure 1B shows the front view. By manipulating the movement keys, the rear of the  
5 product 122 can be viewed. Figure 1C shows the rear view.

Both of these views have sufficient size and resolution to allow the labels to be clearly visible and preferably large enough to be read. The user can also rotate the view to obtain different views -- a side view, an edge view, and views  
10 of different labels.

The user can also actuate the zoom-in button 136 to zoom-in on a portion of the product. The zoom can be centered on the readable label so that the user can obtain a larger picture of the label to read the information from that  
15 picture. Figure 1C shows a slightly zoomed-in version.

Another aspect uses graded resolution for the image. The ornamental part of the packaging can be displayed with different resolution than the readable parts, e.g., the labels. In one embodiment, the actual product is formed of  
20 different zones as shown in Figure 1D.

Each zone has a different kind of information, e.g., a highly compressed JPEG image portion 180 for the ornamental part, a less compressed JPEG portion 182 for more important parts, and finer resolution parts 184. The fine resolution

part 184 can be ASCII or rich text format type textual information.

It should be appreciated from the above that the user can look at the product from any desired angle. The user can read  
5 all of the labels on the product, and can see packaging from different angles. In the case of a boxed product, the user can see the box from all different angles including front, back, top and sides. Another movement key can enable the user virtual opening of the box to see the product inside.

10 According to a preferred mode of carrying out this system, the entire three-dimensional image loads until it is completely loaded, and then it is displayed. The three-dimensional image is preferably compressed using lossy compression to minimize the size of the image.

15 In an alternative mode, only the view being called for is loaded. The remainder of the portions of the three-dimensional views are loaded in the background, or only loaded when requested.

Another embodiment of this system defines an extension to  
20 hypertext mark up language which simulates the three-dimensional representation of the product/packaging using a reduced data set. The true 3D image stores real 3D information that can be manipulated to see the object from any angle or view. In this HTML extension, in contrast, it is

recognized that most objects can be looked at as being like a cube. The cube can be viewed from points 1-6 shown in Figure 3A -- front, back; top, bottom; left, right.

Additional vantage points may be desireable to allow  
5 viewing from angles. 20 additional points are shown in Figure 3B. Therefore, 26 discrete images provides all the basic views that could simulate a three-dimensional view of the product.

A reduced data set view can be formed from only the six  
basic views in Figure 3A, viewing the object from only the  
10 points 1 through 6 shown in Figure 3A. An even further reduced data set can view the object only from front and back views without allowing viewing front, back, top and bottom. Other combinations of these sets are also possible.

According to this system, the product is first displayed  
15 from a default view in the product screen 100. The default view is one in which the front of the product, for example, is viewed. The image for each of the views is lossy-compressed using JPEG or MPEG compression. This default image loads first, as shown in step 350 in Figure 3C. After the default  
20 image is loaded, the other n images, e.g. 21 other images, begin loading in the background. The HTML extension also displays arrow keys which enable rotation of the image and viewing the image from other vantage points. Depending on the number of images, each actuation of the arrow keys will select

a different amount of rotation. The rotation is in actuality effected by displaying a different image.

The arrows are detected in step 352, and used to select a different image. The next image is loaded. For example, if  
5 the default view is loaded (front in Figure 3A), then an arrow to the left selects view 17 in Figure 3B. An arrow left/down (arrow 123 in Figure 1B) selects view 5 in Figure 3B. Each arrow operation can be used in conjunction with the map of views to select the next view for viewing.

10 This HTML code can be executed by loading the first JPEG and loading the remainder in the background, or can load the views only when requested.

This system allows the web site operator to select the amount of information they want to present. The amount of  
15 change from the arrows depends on the number of images that have been loaded. A reduced data set can be provided, or more information to show more about the product packaging. The smallest data set that contemplated is  $n=2$  which would show the front and the back of the product. As in the other  
20 embodiments, preferably enough information is provided such that each of the labels on the product can be read, either directly, or using the zoom function. A particularly preferred form of compression uses an adaptable lossy compression where parts of the product are compressed with a

first compression ratio, and the parts containing the label are stored in a different way. For example, the label could have more resolution, or be stored in text form.

5 The concept of touch and feel is quite prevalent in a bookstore. Many bookstores are common on the web, such as BarnesandNoble.com and Amazon.com. These provide very convenient browsing for an individual who knows what book they want to buy. The individual can often see a picture of the cover of the book, and read certain reviews about the book.

10 However, the amount of data is often limited. Moreover, the data that is put on the website is typically data that is decided by the website designers, rather than the publishers of the book. The present paradigm allows those who package the book to decide what the book should look like, and what a

15 buyer should see when they are thinking about buying the book.

In bookstores, readers can often sit and look at the books or even read from parts of the books. A user with enough determination can sit and read a whole book. Bookstores operate based on the assumption that most people

20 will not read all books in that way. However, it enhances the experience of the bookstore. It allows the user to decide if they like the book or not.

The present embodiment teaches a remote information server sales paradigm, which starts by obtaining a digital

image of at least parts of the book. Those digital images could be supplied by the publisher or designer and then used to provide information on the book to people reading the book. This allows the user to read parts of the book.

5 A problem would exist, however, if the entire book was freely available. In that case, any user could download the whole book and then read it on their computer at their leisure. Accordingly, the present system teaches limits on the amount of reading that can be done. A limit is defined  
10 that limits the amount of reading that can be done. The amount of reading is stored in a file indicating the user's activity, e.g., a "cookie". The cookie can expire or persist, as described herein. The cookie can be stored on the information server, or on the user's home computer. If the  
15 cookie expires, then additional reading can be done later. Another embodiment defines total limits, where the user is limited in the amount that they can read any title, and the cookie does not expire.

The present system also facilitates touch and feel like  
20 in the first embodiment. However, the touch and feel is modified for use in reading a book. A reader of a book looking at the exterior of the book needs only to see the front cover, back cover and spine. There is no need to see the top, bottom or other edges that do not typically contain

viewed information. In addition, certain information is often printed on insides of the covers, on, for example, the liner notes. The book is virtually openable to read those inside portions. According to this embodiment, at least the covers, 5 the liner notes and biographic/informational notes, and the table of contents, if any are provided as digital images.

A front view of the book as displayed on the web browser is shown in Figure 4A. The view includes the front cover of the book showing an accurate depiction of the look of the book including the title, and artwork. The view has a resolution 10 that is sufficient to enable the printing on the book to be read by a viewer. A number of additional manipulation keys are also defined to change the view of the book that is seen by a viewer. A first manipulation key 402 defines 15 turning over the book. When the cursor is placed over this key for about 2 seconds, a small text item, a "screen tip", is displayed indicating "turn the book over". If that key is depressed, the view changes to the view shown in Figure 4B which shows the book from the back. Again, the colors and 20 artwork of the book are accurately depicted. The printed portion of the book is displayed in a manner enabling that printed portion to be accurately read. As in the previous embodiments, this can use a graded resolution system, that provides more resolution for the readable parts of the book



Note that the move keys are always shown as arrow keys. These keys change meaning based on context, but always mean



that movement in some direction will be carried out.

Each open page enables reading the entire amount of print on the page. There may be no limit set for retrieval of certain pages such as liner notes, pictures and biographies, 5 table of contents and indices. However, for actual text, some predefined limit on total new page requests can be defined. The user is allowed to read, for example, 20 pages out of the entire book. Each time a page that has a certain data type loads, it executes the flowchart of Figure 5. A next page 10 operation at 500 first detects if a new page is being requested, at 502. If so, a count is incremented at 504. When the counter reaches a specified value detected at 506, e.g. 20 times, further requests are prohibited. The counter can be present in a cookie, and the cookie can be reset, for 15 example, each 24 hour period. This enables the user to come back a day later and look at other pages in the same book. If the limit is not exceeded, then the page is fetched at 508.

Just like being in a real bookstore -- with enough patience and ingenuity, the entire book can be read. However, 20 at any one sitting, the user can select a certain number of pages to read. For instance, the limit can also be set to only allow certain pages to be read, such as the first chapter only.

Right clicking on any of the images brings up a context

menu which enables the different possible operation, e.g., close the book, a go-to dialog enabling changing to a specified page in the book and other navigation items.

Another modification describes allowing the limits on the book reading to be lifted by payment of a fee. In this embodiment, a fee, e.g. a book reading fee, could be charged for allowing the user to read the entire book. After paying this fee, the user gets unrestricted access to the whole book. The user can read the whole book in one or many sessions. The cookie can also store a bookmark, so that the user can return to their computer during a later session, and take up reading where they left off.

This embodiment has described reading books. However, these techniques can also be used for any other system in which the merchandise can be read. This can be used with music such as Cds, videos, etc. In those cases, the entire stored information can be the inside and outside of the covers, and the liner notes that go along with the music, e.g., length of songs, band members, song lyrics, etc.

Other embodiments are within the disclosed modes. For example, the present application is described as being used with HTML over the Internet. However, it could be used with any remote information server, using any programming language. For example, this could be used over a modem or other

[illegible]

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